



# SEQUENCE LISTING

<110> University of Kentucky Research Foundation  
Rohr, Jorgen

<120> Derivatives of Mithramycin and Methods of Making and Uses Thereof

<130> 050229-0429

<140> 10/796,304

<141> 2004-03-10

<150> 60/548,175

<151> 2004-03-01

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<170> PatentIn version 3.2

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<211> 5975

<212> DNA

<213> Streptomyces argillaceus

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U.S. Patent Application No. 10/796,304  
Amendment Dated July 18, 2004  
Reply to Notice to File Missing Parts of May 18, 2004  
Replacement Sheet

# FIG. 6

## SEQUENCE LISTING NO. 1

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U.S. Patent Application No. 10/796,304  
Amendment Dated July 18, 2004  
Reply to Notice to File Missing Parts of May 18, 2004

Replacement Sheet

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| tccggggggt  | gccgtccgtt  | ccggttcggc  | gacggaggcg  | gatgcatccg  | cgcccgccg   | 4080 |
| gcccaccgcc  | cggccccccc  | ggcatgccgg  | gcgcgggggt  | cgggcaccga  | ggtgcaagcg  | 4140 |
| ccccgaccgt  | acgcccagcc  | gagccgaccc  | gtggcctctc  | ccgtccctcc  | tgaccgaccc  | 4200 |
| tccccctccc  | tcgtccttgc  | cgacaggttc  | gcccctactt  | ccgacgctcc  | cggagaggtc  | 4260 |
| cactacggat  | gcgcattctg  | ttcaccacgt  | tccccgtgca  | ctcccatcac  | ttcccgatgg  | 4320 |
| tcccactgga  | gcggcggcgc  | tggccgcggg  | gcatgagggtg | cgggtcgcgga | gcgcgccccg  | 4380 |
| gctgatgccg  | gtcgtgaccg  | cgtccggcct  | gcccgggata  | ccggtcggcc  | aggacgtgga  | 4440 |
| ccttgccctcc | ctgtccaaag  | accgcagccg  | ggcgccctgg  | cacgttcagg  | accgctggcc  | 4500 |
| cgacgactgg  | cccgctccgtc | cggaaactcct | cgacgacgag  | cagttcgcgc  | tgatcgagaa  | 4560 |
| cctgggacgg  | atgcagacgg  | tcatggcctc  | ggccatgctc  | gacgaccCgc  | tgagcttcgc  | 4620 |
| ccggtactgg  | cggccccgac  | tgggtggCgca | cgacgcctgc  | agcctcgccg  | gcccggtggt  | 4680 |
| cgccgcgcgc  | ctgggcgtgc  | ccaacgtcag  | ccacctgtgg  | ggcactccgg  | gactccagcg  | 4740 |
| catcgagctg  | cgccgcattg  | gcggcgaaac  | gctgccggag  | tacgtccggc  | tgtacgagcg  | 4800 |
| ggcgggaacg  | acggtgcgga  | ccgagcccag  | tgccctggatc | gaccccagtg  | cccccggcac  | 4860 |
| ccggtaccgg  | gccggaccga  | cctgccgtca  | gatgcgggtac | gtgccctaca  | acggccccggg | 4920 |
| cctgctgccg  | gactggctgc  | gccgggaacc  | gtcgggcagc  | cgggtctgcg  | tcacgtgggg  | 4980 |
| cgccacctcc  | atggccctgc  | gcggcggcac  | cgtcgtcgaa  | ctcgtacgcc  | agtgcgtgga  | 5040 |

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Replacement Sheet

|             |            |             |            |            |            |      |
|-------------|------------|-------------|------------|------------|------------|------|
| agccgcgcgc  | gaggtggccg | acgaggtcgt  | cgtcgcggtg | accgaacaga | ccgcgcgggc | 5100 |
| gctggaggac  | acgccgctgc | cggaccacgc  | acgcgtcgcg | gtcggattgc | cgctgcacct | 5160 |
| gctggtgccg  | tcctgcgacc | tcgtggtcca  | ccacggtggc | gccggcacca | gcatgaccgc | 5220 |
| cgcggtcgcg  | ggcgtagcac | agctgctgat  | caccacccgg | cccagagcca | cggccaacgg | 5280 |
| cacccggctg  | gccgcgtcgg | gcgcgcgccg  | gcacctgatg | accacggagg | ccccgcgcg  | 5340 |
| ccgggaggga  | gtgctgctgc | tgcgcgcoga  | gatggaccgt | ctcctatcgg | acccgcaca  | 5400 |
| cggcgccgcc  | gcgcggcggc | tggccgacgg  | catccgcacc | cagcccgcac | cggccgacgt | 5460 |
| ggtggcgagg  | ctgacgcata | tcgtccggta  | ggtcgatccc | gcccggaagg | gatgaatctc | 5520 |
| gcccgcgggg  | gacgactccc | gcccgcacagg | aggagcaaga | accatgcgcg | ttctggtgac | 5580 |
| cacgtccccg  | tggcccaccc | attacttcgt  | cgtccagccg | ctggccgcgc | cgttccgcgc | 5640 |
| ggcgggcccac | gaagtcctcg | tggcggccca  | gccgtccatg | gcggacctgg | tcacccggtc | 5700 |
| cggcctgccc  | atggccgcgc | tcggcagcga  | catcgacatg | gtggacatcc | gccgcaagac | 5760 |
| gctctcccag  | gaactggacg | cccgtcagaa  | gcccggggaa | ccgcccggg  | ccgacgacgg | 5820 |
| cggtcaggtc  | ttcgacacct | ggcagcaggc  | cacctcgcc  | aacctcgacc | cggtcagtga | 5880 |
| cctcgcccg   | acctggaaac | cggacctggt  | gctcgccgac | accatgtgcc | cgccgggcct | 5940 |
| cgtcgcgcga  | caggaactcg | gcgtgcccgg  | gatcc      |            |            | 5975 |

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# FIG. 6

## SEQUENCE LISTING NO. 1

|                 |             |            |            |             |             |      |
|-----------------|-------------|------------|------------|-------------|-------------|------|
| ggatcctcgt      | ccgtctcgac  | caccaggtag | cggctcagcg | cccggtagaa  | acggccgccc  | 60   |
| tcctcggact      | gcacggcgtc  | gtagaggatc | tgctccggcc | gggcccgcgag | cacctgggtcc | 120  |
| aggaacctgg      | gccgctgttc  | gggggggaga | tgagcgtggt | cgtcggggac  | gcactggagc  | 180  |
| gtcggggcca      | gctcgaatgag | gtcgacgtag | cccggttccg | ggtggggcgcg | cgccaggagc  | 240  |
| tggaggacgc      | cgtcgaatccg | cttggccagg | aacgccacca | ccccggtgcc  | gcgcgggctg  | 300  |
| agcagcggct      | gggtccaccc  | cttgacttcg | cggttgccc  | cctccacaga  | cacggcgagc  | 360  |
| atcgcaagt       | gccgtccact  | ggtgtggcgt | atctcgtccg | tgctcgggac  | ccagccgtcc  | 420  |
| acggagggtca     | gcgggacgag  | ctgcgcggcg | acctcgtcgc | gcgccctgag  | cccgttgaa   | 480  |
| cagcgcagca      | gctcgggcag  | ggtgtgcgcg | gcgggggcct | gcgcggacag  | ggaggcggtc  | 540  |
| agggcgcca       | cggccgcccc  | gcgggaaccg | tcggtcgtga | ctccctcgag  | ggaaccgtcc  | 600  |
| ggcggggcga      | cggggaggca  | ggccaggacc | gtccgagtgt | ccatgttgac  | caggtcggg   | 660  |
| acgccgagca      | gccggcgagc  | ctgaccgagg | gtcagccagc | ggtagtcctc  | gtgctcgggc  | 720  |
| acgtcgccga      | cggcctcgac  | gacgagattg | cggttgcgtt | tgcggaagaa  | ccaggaaccg  | 780  |
| tgctcggact      | ggagcacgtc  | gaccagcggc | cggcccttgc | cggggtcctg  | gaagtactcc  | 840  |
| aggtaccgca      | cggcgctgcc  | ctcgtgcacg | cccgtgtagt | tgctcggggt  | ggcctgcacc  | 900  |
| gtgggcgaca      | actggagtcc  | ctcggcggtt | ccgggctcgg | ccttcgcctg  | catcaggcag  | 960  |
| tgaggacac       | cgtcgaactc  | cttgaccagg | atgccgagga | aaccacttc   | cggctgggtc  | 1020 |
| atgatcggct      | gggaccagga  | gacgggggtc | gggcccctcg | agcagagccc  | cagcccctcg  | 1080 |
| acggtgaaga      | agcgcccgct  | gtcgtgcgcc | agattcccgg | tgaccgggtg  | gaagccccag  | 1140 |
| cgtcggagct      | cggcgaaggg  | gatgcgcctc | acgtccatcc | ggatggcctt  | gcggcgctcc  | 1200 |
| tcgaaccagt      | cgtggacacc  | accaggggac | agcagtccgc | tgctggccgc  | cgccgattcg  | 1260 |
| gcgatgcgcc      | tcagatccgg  | cgcgtcgagg | ccgtccgggg | ggaccgctgg  | atgctttctg  | 1320 |
| ctcatgatcg      | cttgagtcat  | ggatgtctct | cccatcgag  | gcatcggcag  | cgcgctcggg  | 1380 |
| ccaccgtcgg      | caccagggtc  | ggagtgcgcg | tcgaggccc  | gtcgggtccg  | accgggcgga  | 1440 |
| cggcggttcc      | gtcagggtcc  | gagccgcctt | cgatcagggc | ggccgaacgt  | ggtcgccgtg  | 1500 |
| gagttccgaa      | gccttgccg   | aagtggcctt | tcagtgagt  | agatcgtgta  | cggcaacctg  | 1560 |
| ctgtaccgc       | aggacgacac  | ccccgacgag | gtggttctct | cctcgatcag  | agcggccctt  | 1620 |
| gacgcgggg       | tgacgacctt  | cgacaccgcg | gacgtctacg | gcatgttccg  | ctccgagagc  | 1680 |
| ctgctggggc      | gggcactggc  | cggcacgccc | cgcaagagc  | tggtgctgtg  | caccaagggtg | 1740 |
| gggatgccga      | cggggttcgg  | gcccacgga  | cgggggctgt | cgaggaaaca  | cgtcatggag  | 1800 |
| tcgtcgacg       | gctcgtcgcg  | ccgtctgcgc | gtcgaccaca | tcgacgtcta  | caccgcgcac  | 1860 |
| cgctacgaacc     | cggcgactcc  | gctggaggag | ctgatgtgga | ccttctccga  |             |      |
| cctggtacgg 1920 |             |            |            |             |             |      |
| gccgggaaga      | tcctctacgt  | cggcatgtcg | gaatggcccg | tgagcgggat  | cgccgaggcg  | 1980 |
| gccgggatag      | gtgcgcggct  | cgggtgtccg | gtgatctgtc | acatgccccg  | ctactcgatg  | 2040 |
| ctgtggcggg      | cgccggaggc  | cgagggtgac | ccgcctgcc  | gtgacctggg  | catcggccag  | 2100 |
| atcgggagct      | cgaattcgaa  | gcttctgcag | ctcacggtaa | ctgatgccgt  | atttgcagta  | 2160 |
| ccagcgtacg      | gcccacagaa  | tgatgtcacg | ctgaaaatgc | cggcctttga  | atgggttcat  | 2220 |
| gtgcagctcc      | atcagcaaaa  | ggggatgata | agtttatcac | caccgactat  | ttgcaacagt  | 2280 |
| gccgttgatc      | gtgctatgat  | cgactgatgt | catcagcggt | ggagtgcaat  | gtcgtgcaat  | 2340 |



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|             |            |             |             |             |             |      |
|-------------|------------|-------------|-------------|-------------|-------------|------|
| acgaatggcg  | aaaagccgag | ctcatcggtc  | agcttctcaa  | ccttgggggtt | acccccggcg  | 2400 |
| gtgtgctgct  | ggtccacagc | tccttccgta  | gcgtccggcc  | cctcgaagat  | gggccacttg  | 2460 |
| gactgatcga  | ggccctgcgt | gctgcgctgg  | gtccgggagg  | gacgctcgtc  | atgccctcgt  | 2520 |
| ggtcaggtct  | ggacgacgag | ccgttcgata  | ctgccacgtc  | gcccgttaca  | ccggaccttg  | 2580 |
| gagttgtctc  | tgacacattc | tggcgccgtc  | caaagttaaa  | gcgcagcgcc  | catccatttg  | 2640 |
| cctttgcggc  | agcggggcca | caggcagagc  | agatcatctc  | tgatccattg  | cccctgccac  | 2700 |
| ctcactcgcc  | tgcaagcccg | gtcgcccggt  | tccatgaact  | cgatgggcag  | gtacttctcc  | 2760 |
| tcggcggtgg  | acacgatgcc | aacacgacgc  | tgcattctgc  | cgagttgatg  | gcaaagggtc  | 2820 |
| cctatgggggt | gccgagacac | tgcaccattc  | ttcaggatgg  | caagttggta  | cgcgtcgatt  | 2880 |
| atctcgagaa  | tgaccactgc | tgtgagcgct  | ttgccttggc  | ggacaggtgg  | ctcaaggaga  | 2940 |
| agagccttca  | gaaggaaggt | ccagtcggtc  | atgcctttgc  | tcggttgatc  | cgctcccgcg  | 3000 |
| acattgtggc  | gacagccctg | ggtcaactgg  | gccgagatcc  | gttgatcttc  | ctgcatccgc  | 3060 |
| cagagggcgg  | gatgcgaaga | atgcgatgcc  | gctcgccagt  | cgattggctg  | agctcatgag  | 3120 |
| cggagaacga  | gatgacgttg | gaggggcaag  | gtcgcgctga  | ttgctggggc  | aacacgtgga  | 3180 |
| gcggtatcgg  | gattgtcttt | cttcagctcg  | ctgatgatata | gctgacgctc  | aatgccgttt  | 3240 |
| ggcctccgac  | taacgaaaat | cccgcatttg  | gacggctgat  | ccgattggca  | cggcggacgg  | 3300 |
| cgaatggcgg  | agcagacgct | cgtccggggg  | caatgagata  | tgaaaaagcc  | tgaactcacc  | 3360 |
| gcgacgtctg  | tcgagaagtt | tctgatcgaa  | aagttcgaca  | gcgtctccga  | cctgatgcag  | 3420 |
| ctctcggagg  | gcgaagaatc | tcgtgctttc  | agcttcgatg  | taggagggcg  | tggatatgtc  | 3480 |
| ctgcggttaa  | atagctgcgc | cgatggtttc  | tacaaagatc  | gttatgttta  | tcggcacttt  | 3540 |
| gcatcggccg  | cgctcccgat | tcgggaagtg  | cttgacattg  | gggaatttcg  | acgtcatatg  | 3600 |
| gatccgatga  | tctgtacttt | cacctggaa   | cagggcgctg  | tgacgggcaa  | gtacgcgccg  | 3660 |
| ggcgccccgc  | ccccggccgg | gtcccgggcc  | acggcaccca  | aagggtggccg | ggccccgttg  | 3720 |
| atgcggcgct  | ggctggacga | cgacaaggtc  | ctcgggcgcg  | tcgagcggtc  | gcgtccgctc  | 3780 |
| gccgaggagg  | ccgggctgac | cacggcgcac  | ctcgcggtgg  | tgctccagaa  | tcccgcgcgc  | 3840 |
| agcggggccg  | tcacggtctc | gttcaacgcc  | gaacagggtc  | tggccaacgc  | cgagtcggcc  | 3900 |
| ggcgtccgtc  | tggagacgga | cctgctggtg  | aggatcgacg  | aggctcctgg  | cgactccgtc  | 3960 |
| gtgcacgacg  | aggagtagcc | cccgggcggg  | gccggtggag  | gcggatgcga  | cgccgttcgt  | 4020 |
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| gcccaccgcc  | cggcccgcgc | ggcatgcggg  | gcgcgggggt  | cgggcaccga  | ggtgcaagcg  | 4140 |
| ccccgaccgt  | acgccgagcc | gagccgaccc  | gtggcctctc  | ccgtccctcc  | tgaccgaccc  | 4200 |
| tccccctccc  | tcgtccttgc | cgacaggttc  | gcccctaact  | ccgacgctcc  | cggagagggtc | 4260 |
| cactacggat  | gcgcattctg | ttcaccacgt  | tcccctggca  | ctcccatcac  | ttcccgatgg  | 4320 |
| tcccactgga  | gcggcggcgc | tggccgcggg  | gcatgaggtg  | cgggtcgcga  | gcgcgcccgc  | 4380 |
| gctgatgccg  | gtcgtgaccg | cgtccggcct  | gcccgggata  | ccggtcggcc  | aggacgtgga  | 4440 |
| ccttgccctc  | ctgtccaacg | accgcagccg  | ggcgcctggg  | cacgttcagg  | accgctggcc  | 4500 |
| cgacgactgg  | cccgtccgtc | cggaactcct  | cgacgacgag  | cagttcgcgc  | tgatcgagaa  | 4560 |
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| cgccgcgcgc  | ctgggcgtgc | ccaacgtcag  | ccacotgtgg  | ggcaactccg  | gactccagcg  | 4740 |
| catcgagctg  | cgccgcattg | gcggcgaaac  | gctgcgggag  | tacgtccggc  | tgtacgagcg  | 4800 |
| ggcgggaacg  | acggtgcgga | ccgagcccag  | tgccctggatc | gaccccagtg  | cccccgcat   | 4860 |
| ccggtaccgc  | gccggaccga | cctgcggtca  | gatgcgggtac | gtgcctaca   | acggcccggg  | 4920 |
| cctgctgcgc  | gactggctgc | gccgggaacc  | gtcgggcagc  | cgggtctgcg  | tcacgtgggg  | 4980 |

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|             |             |             |            |            |            |      |
|-------------|-------------|-------------|------------|------------|------------|------|
| cgccacctcc  | atggccctgc  | gcggcggcac  | cgtcgtcgaa | ctcgtacgcc | agtgcgtgga | 5040 |
| agccgccgcc  | gaggtggccg  | acgaggtcgt  | cgtcgcggtg | accgaacaga | ccgcgcgggc | 5100 |
| gctggaggac  | acgcgcgtgc  | cggaccacgc  | acgcgtcgcg | gtcggattgc | cgctgcacct | 5160 |
| gctggtgccg  | tcctgcgacc  | tcgtggtcca  | ccacggtggc | gccggcacca | gcatgaccgc | 5220 |
| cgcggtcgcg  | ggcgtagcac  | agctgctgat  | caccacccgg | cccagagcca | cggccaacgg | 5280 |
| cacccggctg  | gcgcgctcgg  | gcgcgcgccg  | gcacctgatg | accacggagg | tccccgccgc | 5340 |
| ccgggaggga  | gtgctgctgc  | tgcgcgcga   | gatggaccgt | ctcctatcgg | accccgca   | 5400 |
| cggcgccgcc  | gcgcggcggc  | tggccgacgg  | catccgcacc | cagcccgcac | cggccgacgt | 5460 |
| ggtggcgagg  | ctgacgcata  | tcgtccggta  | ggtcgatccc | gcccggaagg | gatgaatctc | 5520 |
| gcccggcggg  | gacgactccc  | gcccgcacagg | aggagcaaga | accatgcgcg | ttctggtgac | 5580 |
| cacgtccccg  | tggcccaccc  | attacttcgt  | cgtccagccg | ctggccgcgc | cgttccgcgc | 5640 |
| ggcggggccac | gaagtccctg  | tggcggccca  | gccgtccatg | gcggacctgg | tcacccggtc | 5700 |
| cggcctgccc  | atggccgcgc  | tcggcagcga  | catcgacatg | gtggacatcc | gccgcaagac | 5760 |
| gctctcccag  | gaactggacg  | cccgtcagaa  | gcccggggaa | cccgcccggg | ccgacgacgg | 5820 |
| cggtcaggtc  | ttcgacacct  | ggcagcaggc  | caccctcgcc | aacctcgacc | cggtcatgga | 5880 |
| cctcgcccg   | acctggaaac  | cggacctggt  | gctcgccgac | accatgtgcc | cgcgggcct  | 5940 |
| cgtcgcgcga  | caggaaactcg | gcgtgccggg  | gatcc      |            |            | 5975 |